WATER WELL AND PUMP RECORD RULES

Section 12707 and Rule 175 Well Records

- Water well and pump records and well plugging records shall be submitted within 60 days. The contractor shall retain a copy of the well log and shall provide a copy of the well log to the owner, and 2 copies to the local health department.
- The local health department shall forward 1 copy to the DEQ within 30 days.
- Only those forms approved by the DEQ shall be used.
- Electronic submittal of the water well and pump record via Wellogic is strongly encouraged.
- Drive point wells shall be submitted on a form.
- Contractor shall record the geological thicknesses at the site and it shall be available for inspection.
- The well log shall be signed by the registered contractor only.
- If a contractor fails to submit a well log within 60 days or fails to maintain a drilling record, the local health department or DEQ may require geophysical logging of the well.

Rule 176 Pump Installation Records

- Pump installation records shall be submitted within 60 days. The contractor shall retain a copy of the well log and shall provide a copy of the well log to the owner, and 2 copies to the local health department.
- The local health department shall forward 1 copy to the DEQ within 30 days.

Rule 268 Dewatering Well Records

- The contractor shall retain a copy of the well log and shall provide 1 copy of the well log to the person responsible for plugging the dewatering well, and 2 copies to the local health department.
- Dewatering well drilling data shall be reported on a dewatering well record form.
- Contact the DEQ for additional information on dewatering well record submittal.

WELL RECORDS

Rule 175 states, “Within 60 days of the date of completion of a well, a well drilling contractor shall furnish the well owner with 1 copy and a health officer with 2 copies of a well log that contains the information required on the form furnished by the director. The health officer shall send 1 copy of the well log to the department of environmental quality within 30 days after the health officer receives the copies of the well log. A well drilling contractor shall retain a copy of the well log.“

Below is an explanation of how to fill out the Water Well and Pump Record (MDEQ form EQP 2017 01/05). Water well records are expected to be accurate. It is recommended that field notes be kept on the job site and later transferred to reconstruct data needed to complete the record. This will avoid having to depend on memory to reconstruct data needed to complete the record.

1. LOCATION OF WELL

The location of a well is very important, since the formation information is useless without the correct well location. There are several ways to find this location information. In order of increasing difficulty, they are:

1. Look for the legal property description on permits for the well, septic system, or building.
2. Ask the owner for the legal description from the tax records for the property. An example of a legal description is:

   “The land embraced in the annexed plat of Label Subdivision, Part of the SW ¼ of the SW ¼ , section 14, T29N.R8E, Michigan Meridian, Sanborn Township, Alpena County, Michigan, is described as.…”

3. Look up the property in a commercial plat book. The plat books list all of the larger landowners in the county and clearly show the township, town, range, and section. Plat books cost between $20-$40 and can be obtained from some local county offices or soil conservation districts.

4. Use a county road map to determine the required information. County maps can usually be obtained for free from county road commissions. If you work in several different counties or statewide, you may want to purchase an atlas of county maps, available at many stores.

   Below is a detailed description of how to determine the location of a well, assuming that a legal description is not available and the well location must be described using only county maps.

   County

   If the well is near a county line, be sure that the proper county is listed. Do <u>not</u> abbreviate the county name.

Township Name
A county is divided into several townships. Most townships are six miles by six miles, or 36 square miles. Some townships in Michigan contain more than 36 square miles. When locating a well in a particular township, make sure that it is placed in the correct township, as some county maps do not clearly mark the township boundaries.

Town and Range Number
These numbers are "grid" numbers used by surveyors to locate a piece of land in the state. For example, a vertical "grid" number, or town number, could be T26N or T8S. Examples of a horizontal "grid" number, or range number, could be R15W or R15E.

A county map, when you turn it right side up, always has north at the top. Using a county map, the town range number can be found as follows:

1. Find the point on the map where the well is located.
2. Take a ruler and line up the well location with the east or west (left or right) side of the map. Draw a line. Look for the town number on the sides of the map and see which one comes closest to the line. This is the town number.
3. Now take the ruler and line up the well with the north or south (top and bottom) side of the map. Draw a line. Look for the range number closest to the line.

Section Number
Each township is divided into 36 sections. Each section is one mile by one mile and contains 640 acres. Sections are always numbered within a township as follows:

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Where there is a lakeshore, the numbering system may be more irregular. The section numbers are the small numbers evenly spaced in one mile square sections on the map. Once again, the section boundaries are not always marked clearly, so make sure you have determined the section boundaries before you locate the well in a particular section.

Latitude & Longitude

The latitude and longitude are obtained by using a global positioning system (GPS) unit. The GPS unit receives information from satellites that orbit the Earth, and it tells you exactly where you are located on Earth. The latitude and longitude are entered into Wellogic, the statewide groundwater database. The contractor must make sure that their GPS unit is reporting the latitude and longitude in "decimal degrees". The default setting for most GPS units is "degrees/minutes." In "decimal degree" format, the latitude will look similar to "42.12345" and the longitude will look similar to "83.12345." The contractor only has to change this setting once for the life of the GPS unit. It is also very important that the latitude and longitude are reported with a minimum of 5 digits after the decimal point, as shown above.

Distance and Direction from Road Intersection

Complicated locations should be described as if you were giving someone directions on how to get to the site. Here are some acceptable descriptions:

- ✓ "1/8 mile north of Perry Road on US 23, 500 feet west of US 23"
- ✓ "North on M-18 ½ mile past Clark Road, SE 0.2 miles on Farm Lane in Lakeview Subdivision, Lot 18"
- ✓ "Pleasant Road ¼ mile east of Maple River, north on Shady Lane, 600 feet west of Lane"

To fill out this section correctly, ask yourself if the description meets these requirements:

1. Does the description contain a major road intersection that can be found on a county map?
2. Are the distances from the intersection to the well indicated?
3. Does the description match your sketch map of the well location?
4. Could you find this well based only on the information given on your well record?

Street Address and City/Zip of Well Location

If the owner's address is not the same as the address of the well, this line must be filled out with the address of the well. Be sure to list the street number, street name, closest village, town, or city, and the zip code. Lot numbers or rural route numbers should not be used as the only address because they are meaningless to someone trying to determine the well location on a county or township map. If the well is in a new subdivision, obtain the street number if available or a lot number if the street number is not available. Or describe the well location within the subdivision as clearly as possible in the spaces marked "Sketch Map" and the "Distance and Direction".

2. FORMATION DESCRIPTION

Describe the predominant material penetrated under "Formation." such as clay, silt, sand, gravel, shale, sandstone, or limestone. Each formation drilled should be described. Avoid general terms such as "bedrock" or "drift." Terms such as sandy, silty, clayey, or shaley can be used to describe mixed formations. Color is appropriate for more fully describing some

formations as well as terms describing texture as soft, hard, coarse, medium fine, fractured, or porous. Terms such as hard or soft are also useful to describe the formation density or ease of drilling.

Examples of some formation descriptions are:

"fine silty brown sand"	"soft silty gray clay"
"sandy fine gravel"	"fine sand with clay streaks"
"fractured gray limestone"	"hard gray sandstone"
"hard gravelly brown clay"	"sticky gray clay"
"soft gray shale"	"hard brown clay with boulders"

Enter the thickness of each formation in feet in the column labeled "Thickness of Stratum." In the column "Depth to Bottom of Stratum" enter the total depth drilled to that point. Below is an example of the correct way to list formation depths:

Thickness of Stratum	Depth to Bottom of Stratum
10	10
27	37
17	54
22	76
19	95

Note that the "Thickness of Stratum" column, when added up, should equal the last value in the "Depth to Bottom of Stratum" column.

3. OWNER OF WELL

The address of the well owner is recorded in this space. Make sure that the street number, street name, city, and zip code are listed. If this address is the same as the well location, check "yes" after the question "Address Same As Well Location?" If this address is not the same as the well location, check "no" and fill out the line to the left asking for "Street Address and City of Well Location."

If the mailing address of the well owner is a route number, be sure to list a street address for the well. If a route number is used for a well location description, it is very difficult for someone to determine the well location based only on that information. This also applies to the use of lot numbers as a well address.

4. WELL DEPTH

Record the completed well depth. This may be different from the total depth drilled if the formation was backfilled. If a dry hole was drilled, record the depth of the dry hole. Also record the date the well was completed. A "new well" is a well drilled at a new home or business. A "replacement well" is a well drilled to replace an existing well.

5. DRILLING METHOD

Make the drilling method or methods used to complete the well or dry hole.

6. USE
Mark the type of well according to the following definitions:

"Household" refers to a private water supply serving one residence only. Wells serving apartments, several houses, gas stations, stores, etc. are not domestic.

"Irrigation" refers to irrigation wells used for plants, livestock, or other agricultural purposes and not for drinking water.

"Industrial" refers to wells that are used to supply water for industrial processes, fire protection, or similar nonpotable uses.

"Test" refers to wells or holes drilled for aquifer testing or other temporary uses.

"Type I Public" refers to wells providing year-round service to a building or community with at least 15 living units or 25 residents. Examples: municipal wells, subdivisions, large apartment buildings, mobile home parks, and nursing homes.

"Type II Public" refers to wells providing water at least 60 days out of the year to at least 15 service connections or 25 individuals. Type II wells are all noncommunity supplies, which means that people are not living permanently at the facility using water. Examples: schools, gas stations, restaurants, and churches.

"Type III Public" refers to wells that supply water to the public, but that do not fall under any other category. Examples: apartments with less than 15 living units and small businesses with less than 25 employees.

"Heat Pump" refers to wells drilled to supply water for an open loop groundwater heat pump or return wells to discharge water from a groundwater heat pump.

7. CASING
Indicate the type of casing material, whether it is threaded or welded, the diameter (inches), the length installed (feet), and the SDR number if pvc plastic casing is used. The "Borehole" diameter refers to the size of the hole that the casing is installed in. The "Height Above/Below Surface" refers to the termination of the casing or pitless adapter above or below the ground surface in feet. Circle the appropriate choice. Check the appropriate box if any casing fittings are used.

8. SCREEN
"Type" is the screen material (stainless steel, plastic, or other material). "Diameter" is the nominal diameter of the screen in inches. "Slot/Gauze" is the size of the screen openings (for example, 12 slot). "Length" is the length of the screen in feet. "Set Between" is the depths that the screen is set between in feet. "Fittings" refers to additional fittings on the screen, such as a K-packer, bremer check, or blank. A "Blank" is a piece of pipe or casing set above the screen in a telescoped installation.

9. STATIC WATER LEVEL
This is the water surface level measured before the well is pumped or bailed, but after completion of well development. Indicate if the well is flowing.

10. PUMPING LEVEL
This is the water level measured after the pump is turned on and run until the water level in the well stabilizes. During certain well development procedures, such as air, it is not possible to measure the actual pumping water level. It is acceptable to note the depth at which air development took place. However, the contractor should note "air" on the well record. This will tell anyone interpreting the well record that it is not an actual pumping water level measurement. The development time in hours and the well production in GPM must also be noted.

11. WELLHEAD COMPLETION
Mark the type of casing termination. In some cases, more than one box can be checked, such as "pitless adapter" and "12 inches above grade"

12. WELL GROUTING
Grouting includes only those materials approved in the well construction regulations such as neat cement, concrete, heavy bentonite slurry, or other bentonite grouts. It does not include materials such as drilling mud, drilling cuttings, or native materials. Note the number of bags of grout used and any additives. Do not enter brand names in the grouting materials or additives section.

13. NEAREST SOURCE OF CONTAMINATION
Possible contamination sources include: storage tanks or storage areas for chemicals, gasoline or oil storage tanks, buried sewers and sewer connections, septic tanks, drainfields, dry wells, animal yards, and privies. The distance and direction of these contamination sources from the well should be indicated. This section also asks whether or not the new well was chlorinated and the old well abandoned (in the case of a replacement well).

14. PUMP
Check "Not Installed" if no pump is installed in the well. Otherwise, complete all items in this section. If the construction was a "Pump Installation Only" check the box and complete the location, owner of well, well depth and date completed, pump information, and water well contractor's certification boxes.

15. PRESSURE TANK
Check "Not Installed" if no pressure tank is installed. Otherwise, complete all items in this section.

16. ABANDONED WELL PLUGGED

Complete this section if the abandoned/old well was plugged at a replacement well site. If the abandoned well being plugged is not at a replacement well site, the Abandoned Well Plugging Record (MDEQ form EQP 2044) needs to be completed.

17. REMARKS

This box can be used to note any unusual characteristics of the well or unusual occurrences during its construction. Examples: lost circulation zones, multiple screened wells, owner wants to keep old well and use for irrigation.

18. DRILLING MACHINE OPERATOR & PUMP INSTALLER

The name of the person who actually drilled the well and installed the pump should be entered here. Rig operators and pump installers who plan on becoming registered should keep copies of well logs for wells they drill and/or install the pumps so that they can submit them with their application for registration.

19. WATER WELL CONSTRUCTION CERTIFICATION

Water well records must be signed by the registered representative of the well drilling firm. An owner-installed well should be indicated by printing "owner" in the space for the registration number. The contractor should keep in mind that all well records are expected to be accurate and that the following statement is above the contractor's signature: "This well was drilled under my supervision and this report is true to the best of my knowledge and belief." Falsification of water well records is a violation of state law which may result in suspension or revocation of a driller's registration certificate.

Electronic Well Record Submittal

Wellogic is the internet-based data entry program developed by the state of Michigan to provide an easy method for water well drilling and pump installation contractors to submit well records. Electronic submittal satisfies state and county well record submittal requirements, as required by Part 127, Act 368 of the Public Acts of 1978, as amended and rules. Well records from January 2000 and later are being entered into Wellogic by contractors, local health departments, and the DEQ. Both water well and pump records and abandoned well plugging records are being entered into the database.

Some of the benefits of using Wellogic are: access to hundreds of thousands of water well and abandoned well records across the state, aids contractors in developing bids, increases efficiency in submitting well records, improves the quality of the data entered, reduces mailing costs and paper file storage, and provides a tax deduction for the computer system and internet charges.

Any questions regarding electronic well record submittal should be emailed to the Wellogic Staff at deq-dwr-wellogic@michigan.gov.

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER BUREAU

WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978. Failure to comply is a misdemeanor.

PERMIT NUMBER

TAX NUMBER

WSSN & SOURCE ID/WELL NUMBER

LATITUDE | LONGITUDE | COUNTY | TOWNSHIP

DISTANCE & DIRECTION FROM ROAD INTERSECTION | WELL STREET ADDRESS, CITY/ZIP | FRACTION 1/4 1/4 1/4 | SECTION | TOWN NO. | RANGE NO.

WELL OWNER

ADDRESS

CITY/ZIP

Owner Address Same As Well Address? ☐ Yes ☐ No

DRILLING METHOD ☐ Cable Tool ☐ Rotary ☐ Auger/Bored ☐ Hollow Rod ☐ Jetted ☐ Other

WELL DEPTH _____ ft.

WELL USE ☐ Household ☐ Type I Public ☐ Test Well ☐ Irrigation ☐ Type II Public ☐ Heat Pump ☐ Industrial ☐ Type III Public ☐ Other

DATE COMPLETED

WELL TYPE ☐ New ☐ Replacement ☐ Dry Hole

CASING ☐ Steel-Black ☐ Plastic ☐ Steel-Galvanized ☐ Welded ☐ Threaded ☐ Other

Diameter ____ in. to ____ ft. depth ____ SDR

____ in. to ____ ft. depth ____ SDR

BOREHOLE

Diameter ____ in. to ____ ft. depth

____ in. to ____ ft. depth

Height Above/Below Surface ____ ft.

Casing Fittings ☐ Drive Shoe ☐ Shale Packer

STATIC WATER LEVEL

____ ft. Below Land Surface ☐ Flowing

PUMPING LEVEL (Below Land Surface)

____ ft. After ____ hrs. Pumping at ____ G.P.M.

☐ Air ☐ Bailer ☐ Plunger ☐ Test Pump

SCREEN ☐ Not Installed ☐ Filter-Packed

Material Type _____ Diameter ____ in.

Slot _____ Length _____ ft.

Set Between ____ ft. and ____ ft.

FITTINGS ☐ Neoprene Packer ☐ Bremer Check

BLANK ☐ above ____ ft. Other

WELL GROUTED ☐ Yes ☐ No From ____ ft. to ____ ft.

☐ Neat Cement ☐ Bentonite Slurry ☐ Bentonite Dry Granular

☐ Other _____ No. of Bags ____ Additives _____

WELLHEAD COMPLETION ☐ Pitless Adapter ☐ 12 in. Above Grade ☐ Basement Offset ☐ Well House

NEAREST SOURCE OF POSSIBLE CONTAMINATION

Type _____ Distance ____ ft. Direction ____

Type _____ Distance ____ ft. Direction ____

ABANDONED WELL PLUGGED ☐ Yes ☐ No

Casing Diameter ____ in. Depth ____ ft.

PLUGGING MATERIAL ☐ Neat Cement ☐ Bentonite Slurry ☐ Cement/Bentonite Slurry ☐ Concrete Grout ☐ Bentonite Chips

Number of Bags _____ Casing Removed? ☐ Yes ☐ No

DRILLING MACHINE OPERATOR ☐ Employee ☐ Subcontractor

Name

PUMP INSTALLER (If different from drilling machine operator.)

Name

REMARKS

PUMP ☐ Not Installed ☐ Pump Installation Only

Manufacturer

Pump Type ☐ Submersible ☐ Jet ☐ Other

Model Number _____ HP ____ Volts ____

Pump Capacity ____ G.P.M. Drawdown Seal Installed ☐

Length of Drop Pipe ____ ft. Diameter of Drop Pipe ____ in.

PRESSURE TANK ☐ Not Installed ☐ Buried

Type ☐ Diaphragm/Bladder ☐ Other

Manufacturer _____ Model _____

Total Tank Capacity ____ gal. Pressure Relief Valve Installed ☐

Formation Description	Thickness of Stratum	Depth to Bottom of Stratum
USE 2ND SHEET IF NECESSARY		

WATER WELL CONTRACTOR'S CERTIFICATION

This well was drilled under my supervision and this report is true to the best of my knowledge and belief.

Registered Business Name _____ Registration No. _____

Address

City/State/Zip

Signature of Registered Contractor _____ Date _____

ATTENTION WELL OWNER: FILE WITH DEED

EQP-2017 (01/05)

DRILLING CONTRACTOR COPY

TAX NO:

MICHIGAN DEPARTMENT OF PUBLIC HEALTH
ABANDONED WELL PLUGGING RECORD

PERMIT NO:

1. LOCATION OF WELL

County	Township Name	Fraction 1/4 1/4 1/4	Section No.	Town No.	Range No.

Distance and Direction from Road Intersection

Street Address & City of Well Location

12 OWNER OF WELL
Address

Address Same as Well Location ☐ Yes ☐ No

2. WELL DEPTH: ft.

3. Date Plugging Completed / /

13. DROP PIPE/PUMPING EQUIPMENT REMOVED
☐ Yes ☐ No (Explain in COMMENTS)

4 USE: ☐ Single Family ☐ Irrigation ☐ Test Well ☐ Type I Public ☐ Type II Public ☐ Type III Public ☐ Heat Pump ☐ _____

5. REASON FOR ABANDONING WELL
☐ Municipal Water Hookup ☐ Other _____ ☐ New Well Drilled ☐ Unrepairable

6. CASING:
_____in. dia. to _____ft. depth.
_____in. dia. to _____ft. depth

7. CASING MATERIAL
☐ Steel ☐ Other _____ ☐ Plastic

14. PLUGGING MATERIAL:

Bentonite Chips	from _____ft. to _____ft.	_____50# bags
Bentonite Pellets	from _____ft. to _____ft.	_____50# bags
Bentonite Grout	from _____ft. to _____ft.	_____50# bags
Neat Cement	from _____ft. to _____ft.	_____94# bags
Cement Grout	from _____ft. to _____ft.	_____94# bags

Other _____

8. CASING STATUS AFTER PLUGGING
☐ Buried _____ ft. below grade ☐ Removed
☐ Above Grade _____in.

15. LOST CIRCULATION ZONE MATERIALS USED ☐ Yes ☐ No
Type _____ Quantity _____ Placed from _____ft. to _____ft.

9. FLOWING WELL: ☐ Yes ☐ No

16. PLUGGING SKETCH (Complete if combination of materials was used.)
Show type of plugging materials and interval plugged.

MATERIAL _____ FEET BELOW GRADE

10. SITE SKETCH:
Show location of plugged well(s) relative to buldings, drives,roads, and others structures or landmarks on side. Include a North arrow.

11. COMMENTS

NOTE: **Plugging from well bottom up to ground surface is required.**

15. WATER WELL CONTRACTOR'S CERTIFICATION:
This well was plugged under my jurisdiction and this report is true to the best of my knowledge and belief.

REGISTERED BUSINESS NAME _____ REGISTRATION NO. _____

Address _____

Signed _____ Date _____
AUTHORIZED REPRESENTATIVE

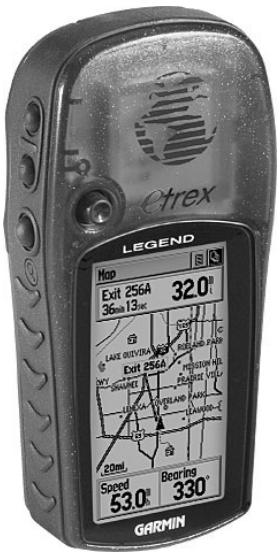
IMPORTANT: File with deed.

WELL OWNER COPY

Authority: Act 368 PA 1978
Completion: Required
Penalty: Conviction of a violation of any provision is a misdemenor.

GW-2-229

WELL DRILLING & GPS



What is Global Positioning System (GPS)?
Twenty four Department of Defense satellites circle the Earth and transmit radio signals to Earth. GPS units take this information and pinpoint the user's exact location (latitude and longitude) on Earth. GPS is popular among hikers, hunters, and fishermen, just to name a few. GPS is also rapidly becoming commonplace in automobiles for both emergency roadside assistance and navigation.

Why should a well driller use GPS?
Obtaining exact locations on water wells drilled in Michigan is beneficial. It allows individuals to map geologic characteristics like depth to bedrock and water well characteristics like static water level, well depth, or flowing well areas. Accurate well record data results in more precise bid preparation by well drilling contractors. Once you learn to use GPS, you'll find it to be quicker and simpler than figuring out the ¼ ¼ ¼ of a section of land from plat books or county maps. Furthermore, the quarter fractions provide for only a 10 acre area in which the well could be located.

How accurate is a GPS unit?
Today's GPS units are extremely accurate. On average, GPS units are accurate to within 15 meters. Newer GPS units with WAAS (Wide Area Augmentation System) capability can improve accuracy to less than three meters. Tall buildings, dense foliage and other sources can affect the accuracy.

What GPS unit should I purchase?
GPS units typically cost $100 to $400. The DEQ doesn't recommend one brand over the other; they all have about the same accuracy. All units show your position and basic navigation information. An inexpensive entry level unit would suffice for locating water wells. Choosing a unit with more features, like mapping detail, can improve your location awareness and navigation capability. Visit www.garmin.com and www.magellangps.com for pricing and features of GPS units.

Where can I purchase a GPS unit?
GPS units are becoming more common place. In addition to hunting/fishing stores, GPS units can now be purchased at most large department stores and electronics stores.

If I collect GPS points on my well installations, are there any benefits to me?
Well drillers who enter GPS data into Wellogic **DO NOT** have to enter the ¼ ¼ ¼ sections on the well log. Reporting the county, town, range and section are still necessary. Also, the wells that you collect latitude and longitude for will be able to be used on the Water Well Viewer website (http://wellviewer.rsgis.msu.edu) and by the DEQ for groundwater mapping purposes.

What do I need to know when reporting the latitude/longitude on the well record?
The coordinate default setting on most GPS units is Degrees/Minutes/Seconds. You must change this setting to Decimal Degrees. This setting is usually indicated in your GPS unit by ddd.ddddd. (e.g. latitude = 42.1814320 and longitude = -84.2211770). The data collected and reported must have a minimum of 5 digits after the decimal point.

Can I obtain the latitude and longitude of a well without using a GPS unit?
Obtaining the latitude and longitude without using a GPS unit can be done, but in most cases, it is far less accurate and is much more time consuming. There are various mapping websites that allow you to retrieve the latitude and longitude. However, many of these sites do not report the data in decimal degrees or do not allow for a reading of 5 digits after the decimal point which is the minimum DEQ requires for accuracy. The DEQ Water Well Viewer allows you to retrieve the latitude and longitude in

the correct format.

What happens if I don't report latitude and longitude on my water well records?
Local health departments review all of the water well records for accuracy and completeness. Well records without latitude and longitude may be returned to the contractor for completion. Contractors who show a pattern of noncompliance with well record submittal may be subject to an administrative action against their Certificate of Registration.

For additional information, please email the Wellogic Help at deq-dwr-wellogic@michigan.gov or call the DEQ at 517-241-1370.